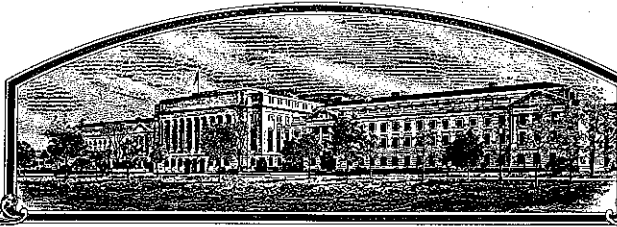


No.



9600151

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

South Carolina Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME IN A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Dillon'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of September in the year of our Lord one thousand nine hundred and ninety-nine.

Attest:

Robert W. Seligson

Acting Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*John H. Dickinson*  
Secretary of Agriculture

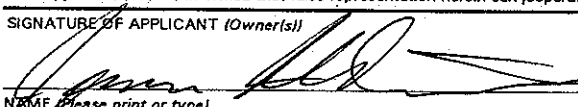
U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) South Carolina Agricultural Experiment Station		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER SC84-931	3. VARIETY NAME Dillon
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 104 Barre Hall Clemson University Clemson, SC 29634-0351		5. TELEPHONE (include area code) 864-656-3140	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER 9600151 DATE 3-6-96 FILING AND EXAMINATION FEE 2450.00 DATE MARCH 5, 1996 CERTIFICATION FEE 300.00 DATE September 20, 99
7. GENUS AND SPECIES NAME Glycine max		6. FAX (include area code) 864-656-3779	
8. FAMILY NAME (Botanical) Leguminosae			
9. CROP KIND NAME (Common name) Soybean			
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name) State Agricultural Experiment Station			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS G. Michael Watkins S.C. Foundation Seed Association Cherry Road, Clemson University Clemson, SC 29634-9952			14. TELEPHONE (include area code) 864-656-2520
			15. FAX (include area code) 864-656-1320
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)			
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act?) <input checked="" type="checkbox"/> YES (If "yes," answer items 18 and 19 below) <input type="checkbox"/> NO (If "no," go to item 20)			
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES (If "yes," give names of countries and dates) <input type="checkbox"/> NO Released by the S.C. Agricultural Experiment Station, March, 1995.			
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.			
The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.			
Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT (Owner(s))  NAME (Please print or type) James R. Fischer		SIGNATURE OF APPLICANT (Owner(s))  NAME (Please print or type)	
CAPACITY OR TITLE Director, SC Agricultural Experiment Station	DATE 1/31/1996	CAPACITY OR TITLE	DATE

## EXHIBIT A

### SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

SC84-931 DILLON SOYBEAN

#### SOYBEAN

'Dillon'

#### 16A. Origin and Breeding History of the Variety

Pedigree: Centennial X Young

Parentage of Centennial is Jackson (4) X D49-2491

Parentage of D49-2491 is S-100 X CNS

Parentage of Young is Davis X Essex

Dillon is derived from a  $F_4$  plant from a cross made at Clemson, S.C., in 1981. Generations were advanced to the  $F_4$  by the single-seed descent (pod-bulk) breeding method. The strain was composited in the  $F_5$  generation in 1984 and designated SC84-931. From 1985 to 1987, Dillon was tested as SC84-931 for nematode resistance, agronomic performance and seed yield in South Carolina. SC84-931 has been evaluated in South Carolina Variety Trials (1988 to present) and USDA Southern Regional Soybean Tests from 1990 to 1993.

Seed from 160  $F_8$  plants were grown in plant rows ( $F_9$ ) in 1989. Rows were evaluated for uniform agronomic traits and 11 rows were bulked (Winter, 1989-90) and increased each year 1990 to 1993. Breeder seed was increased in 1994 and Foundation Seed grown in 1995. Dillon appears stable and uniform within commercially acceptable limits during seed increase since 1990. No genetic variants have been observed. The buff hila color may vary in intensity based on varying environmental conditions.

## EXHIBIT B

## SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

SC84-931 DILLON SOYBEAN

## 16B. Statement of Distinctness

To our knowledge, Dillon most closely resembles Hagood. Both cultivars have the same pedigree. Dillon differs from Hagood in having purple flowers, being susceptible to soybean cyst nematode, Race 3, and being 10 to 15 days earlier in date of maturity.

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) South Carolina Agricultural Experiment Station	TEMPORARY DESIGNATION SC84-931	VARIETY NAME Dillon
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 104 Barre Hall Clemson University Clemson, SC 29634-0351		FOR OFFICIAL USE ONLY PVPO NUMBER 9600151

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

☒

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify)  
Buff to gray

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

☐

1 = Low

2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

☐

1 = Type A (SP1<sup>a</sup>)

2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

9600151

☒ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☒ 31 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☒ 2

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☒ 1

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☒ 1

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☒ 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☒ 1

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☒ 0 ☒ 9

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★

☒ 2Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☒ 0Bacterial Blight (*Pseudomonas glycinea*)

★

☒ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★

☒ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)

★

☒ 2

Race 1

☒ 2

Race 2

☒ 2

Race 3

☒ 2

Race 4

☒ 2

Race 5

☐

Other (Specify)

☒ 0Target Spot (*Corynespora cassicola*)☒ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☒ 0Powdery Mildew (*Microsphaera diffusa*)

★

☒ 0Brown Stem Rot (*Cephalosporium gregatum*)☒ 1Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

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FUNGAL DISEASES: (Continued)

- ★ ☐ 1 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 0 Race 3 ☐ 0 Race 4 ☐ 0 Race 5 ☐ 0 Race 6 ☐ 0 Race 7
- ☐ 0 Race 8 ☐ 0 Race 9 ☐ Other (Specify) \_\_\_\_\_

VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 2 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 1 Race 3 ☐ 1 Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 2 Lance Nematode (*Hoplolaimus Colombus*) (Tolerant)
- ★ ☐ 2 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 1 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 0 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) \_\_\_\_\_

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Young	Seed Coat Luster	Hagood
Leaf Shape	Hagood	Seed Size	Centennial
Leaf Color	Hagood	Seed Shape	Hagood
Leaf Size	Hagood	Seedling Pigmentation	Maxcy

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT *		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
Submitted Dillon	149	1.7	81	-	-	41.4	20.8	15	2-3
Name of Similar Variety Hagood	162	2.2	96	-	-	42.3	20.1	14	2-3

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

\* % protein and oil on dry weight basis



## EXHIBIT E

## SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

SC84-931 DILLON SOYBEAN

## 16E. Statement of the Basis of Applicant's Ownership

Dillon was originated and developed by Dr. Emerson R. Shipe, a plant breeder employed by Clemson University/South Carolina Agricultural Experiment Station. By agreement between employee and Clemson University, all rights to any invention, discovery, or development made by an employee are assigned to the University. No rights to such invention, discovery, or development are retained by the employee.